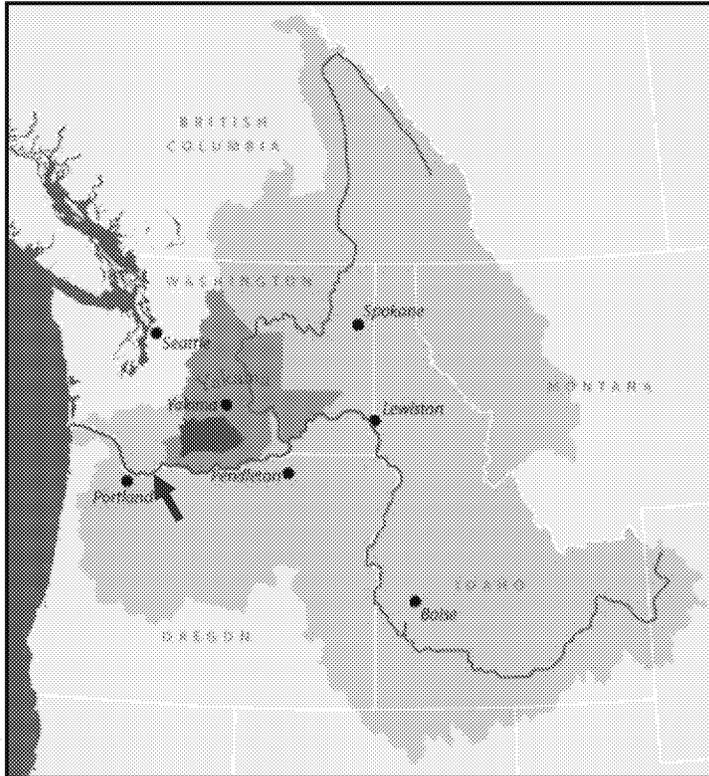


# Bradford Island

Cleanup Site Overview  
by Laura Shira,  
Yakama Nation Fisheries  
November 20, 2019

# Yakama Nation Involvement

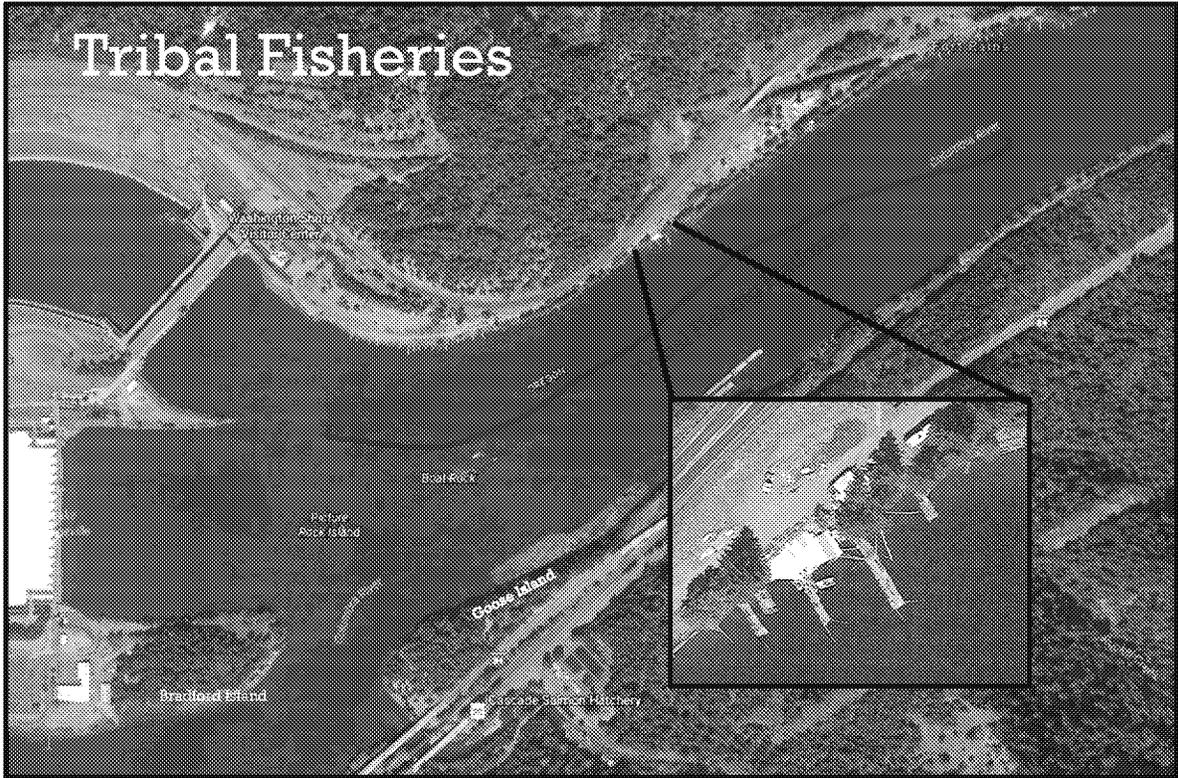


- Dark Purple - Yakama reservation
- Light Purple – Yakama land ceded to US
- Dark Tan – Columbia River Basin

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# Tribal Fisheries



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# Columbia River Fishing Platform



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Fishing villages (In Lieu Sites - Cookes)

# Timeline



- Time Immemorial – strong Native American presence on and surrounding the island
- 1930s - Bonneville Dam Construction Started
- 1930s to 1980s – Upland waste disposal from dam construction and operation, one or more in-river waste disposal incidents
- 1997 - Environmental investigations began
- 2000, 2002 and 2007 - Removal Actions
  - electrical equipment removal
  - diver assisted sediment dredging

# Investigation of In-Water Disposal Areas, 2000-2001



## Electrical Equipment Removal (~60 pieces, 2000)



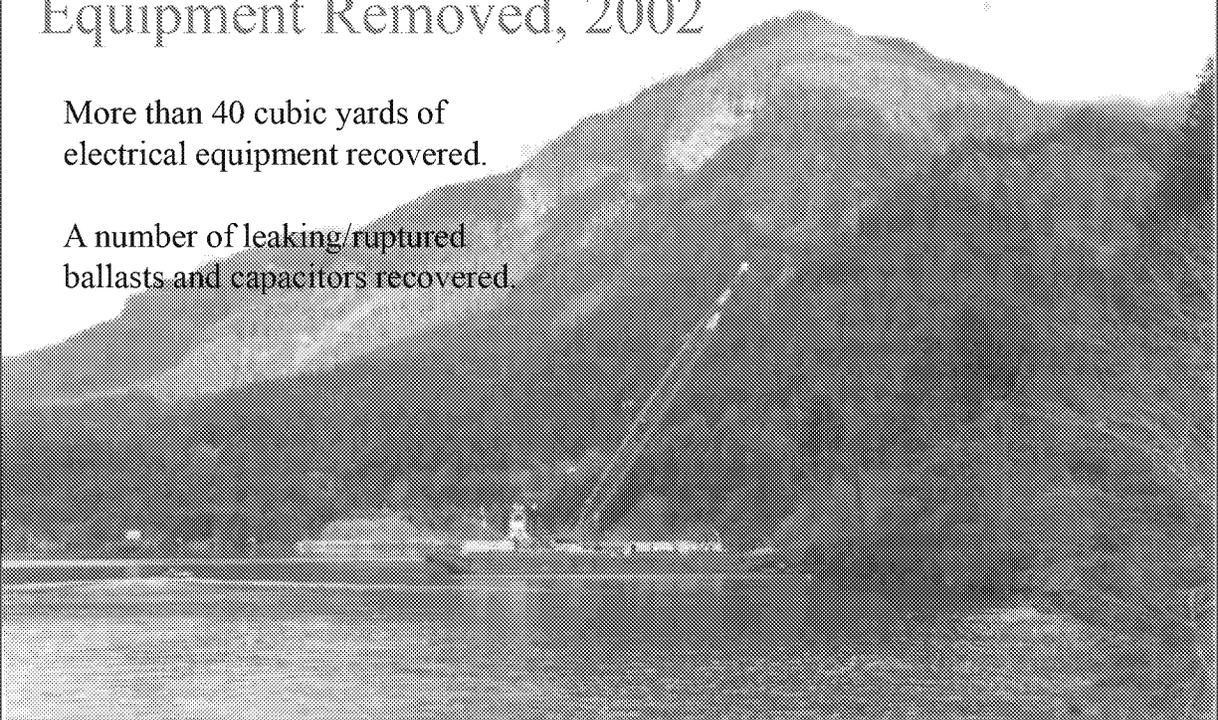
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# Additional In-Water Electrical Equipment Removed, 2002

More than 40 cubic yards of  
electrical equipment recovered.

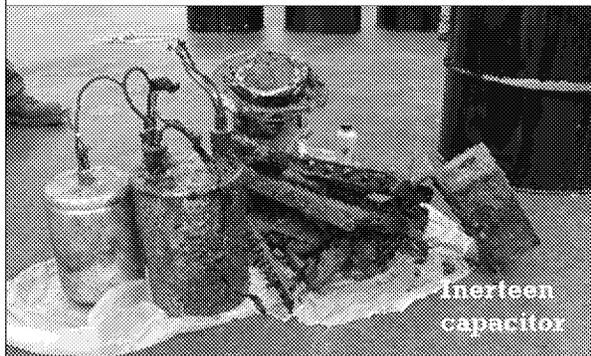
A number of leaking/ruptured  
ballasts and capacitors recovered.



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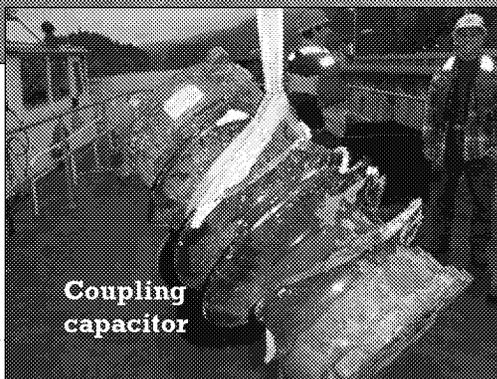
# In-River Hazardous Materials Recovered



Inerteen capacitor



Lightning Arrestor  
6,350ppb PCBs



Coupling capacitor

Equipment Removed: Lightning arrestors, coupling capacitors, inerteen capacitors, light ballasts

PCB concentrations found:

- Westinghouse original formulation reported to be 60 to 75% PCBs
- Site electrical equip: up to 20% PCBs
- Sediment: up to 690,000 ppb (2003), decreased with removal actions
- Fish: up to 183,140  $\mu\text{g}/\text{kg}$  (ppb) (2011)
  - screening level = 0.57 ppb

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Fish - small mouth bass

# Diver-assisted suction dredging, 2007



Dredge water collection and treatment system

## Timeline continued...

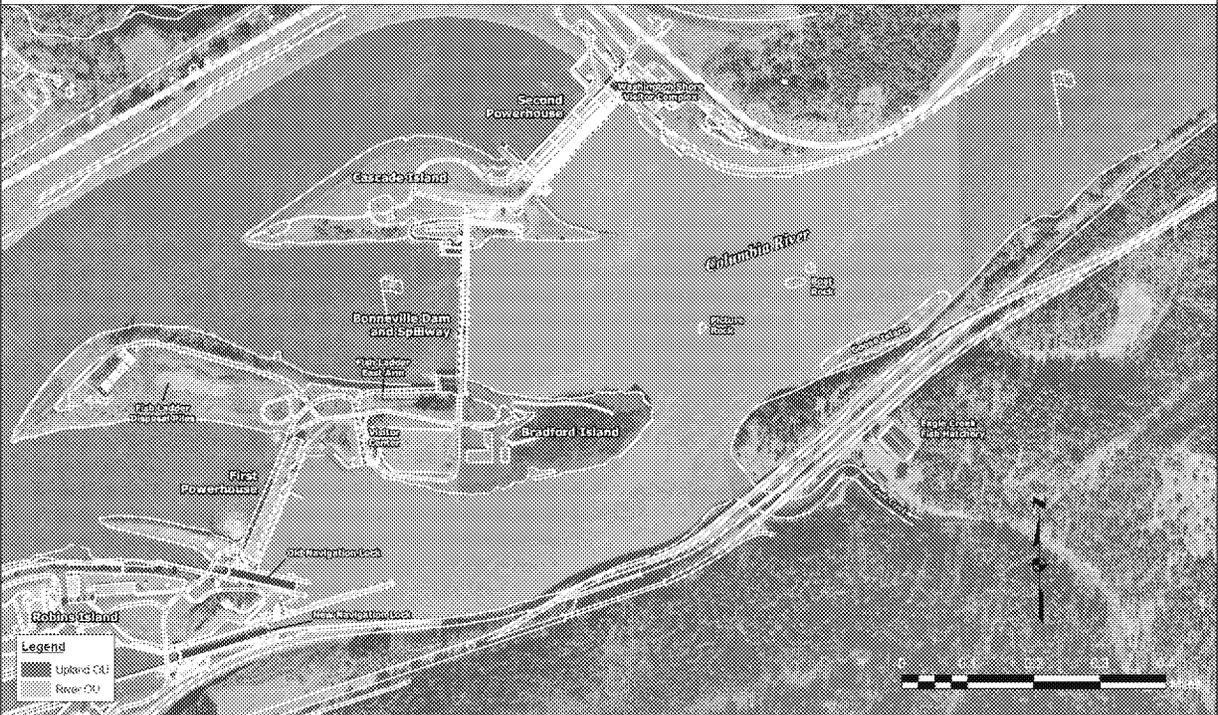


- 2011 – multi-media sampling effort – improved sediment contaminant concentrations; however, maximum smallmouth bass concentration 183,140 µg/kg PCBs (ppb) (screening level = 0.57 ppb)
- 2012 - Remedial Investigation for Upland and In-River
- 2013 - DO NOT EAT Resident Fish Advisory issued jointly by WA and OR health departments for the ~1 mile area upstream of the BI dam
- 2016 to 2019
  - Ongoing evaluations of risk and potential cleanup options for Upland and In-River areas
  - Upland source control planning and data gaps investigations

BI - Feb 2008 PCBs in fish: up to 26,502 ppb

Portland Harbor maximum - 6,460 ppb PCBs in bass fish tissue concentrations in the 2018 OHA "Updated Fish Advisory for Resident Fish and Shellfish, Lower Willamette River" were approximately (Table 1, page 8).  
<https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/FISHCONSUMPTION/Documents/LowerWillametteFishAdvisoryTechnicalReport.pdf>

# Site Map

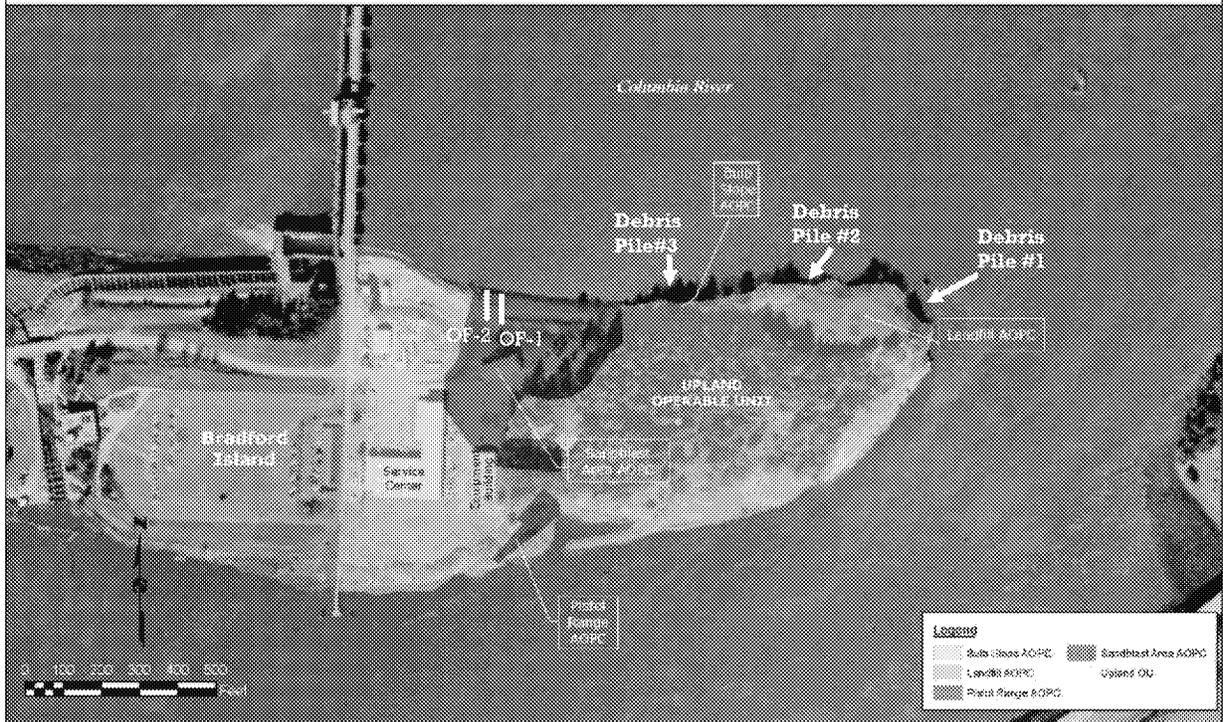


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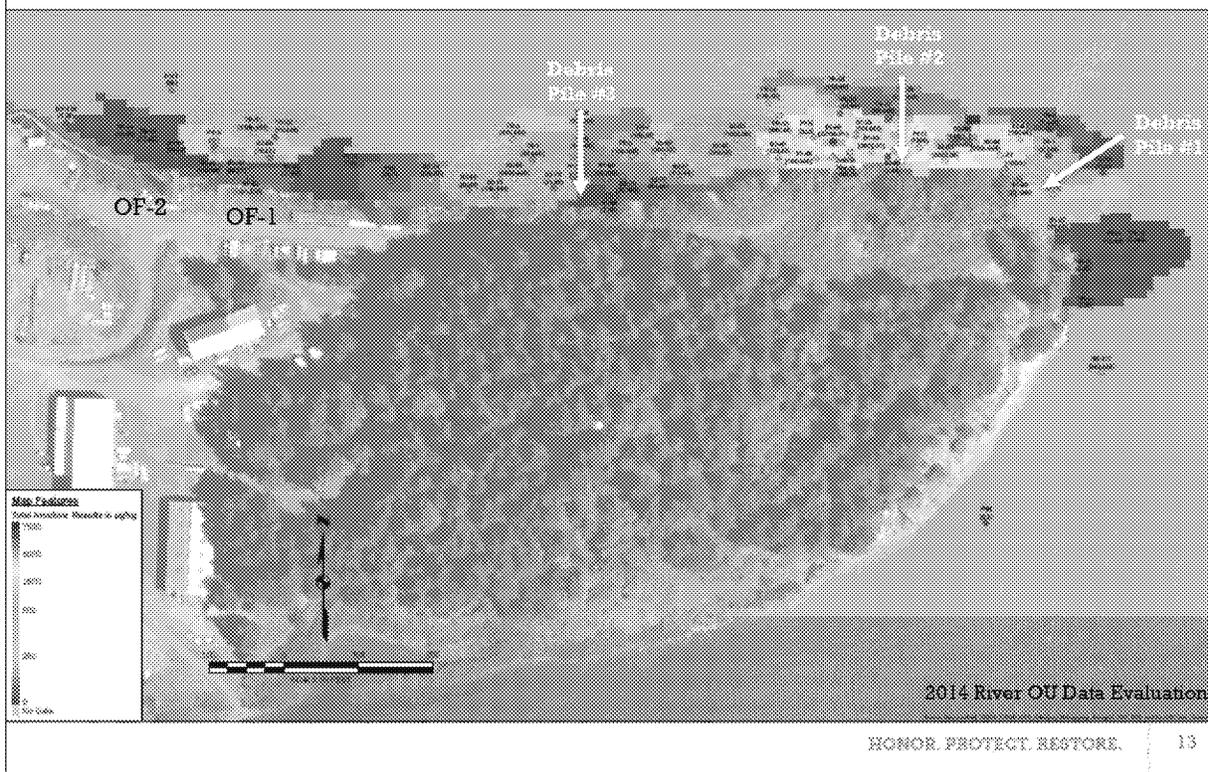
11

Disagreement between USACE and Corps on "Contaminants of Concern"

# Upland - 4 Areas of Concern



# In-River - PCBs in sediments



Data is post-2007-Removal Action Sediment Data

## Human Health Effects



- **PCBs** (polychlorinated biphenyls) – liver, thyroid, skin, neurobehavioral and immune system changes in children, cancer
- **Pesticides** (ex. dieldrin, chlordane) – wide range, organs (kidney, liver), body systems (nervous, digestive, immune), and cancer
- **PAHs** (polycyclic aromatic hydrocarbons) – cancer
- **Metals** (ex. lead, arsenic) – neurological, GI system
- **Mercury** – neurotoxin, kidney, respiration
- **Phthalates** – reproduction, development, endocrine disrupter, cancer

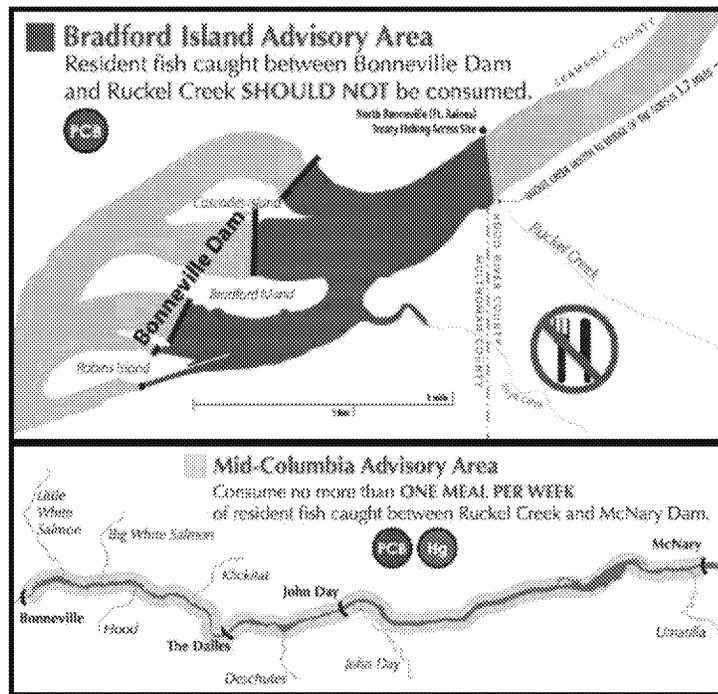
## Aquatic Ecosystem Effects

- Impacts to fish runs in the Columbia River due to:
  - Increased Juvenile Mortality
  - Reduced Adult Survival
  - Decreased Spawning Success

# RESIDENT Fish Consumption Advisories



2013 Advisory -  
Site-Specific  
WA & OR Health Departments



Mid-Columbia Advisory-  
RM 146-292

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THE CONFEDERATED TRIBES & BANDS OF THE  
**YAKAMA NATION**

COLUMBIA RIVER Honor Protect Restore

**IMAGINE...**

a clean and productive Columbia River that sustains the cultural practices of Yakama members and improves life for our neighbors and generations not yet born.



Extra slides if questions

**BONNEVILLE DAM FISH ADVISORY  
AT BRADFORD ISLAND**



DO NOT EAT		HEALTHY TO EAT	
Carp		Salmon	
Bluegill		Steelhead	
Sucker		American Shad	
Small mouth bass		Lamprey	
Large mouth bass			
Sturgeon			
Yellow Perch			
Croppie			
Walleye			
Cottfish			

<https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/FISHCONSUMPTION/Pages/Bonneville.aspx>

**Mid-Columbia River Fish Advisory:**

<https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/FISHCONSUMPTION/Pages/Mid-Columbia.aspx>

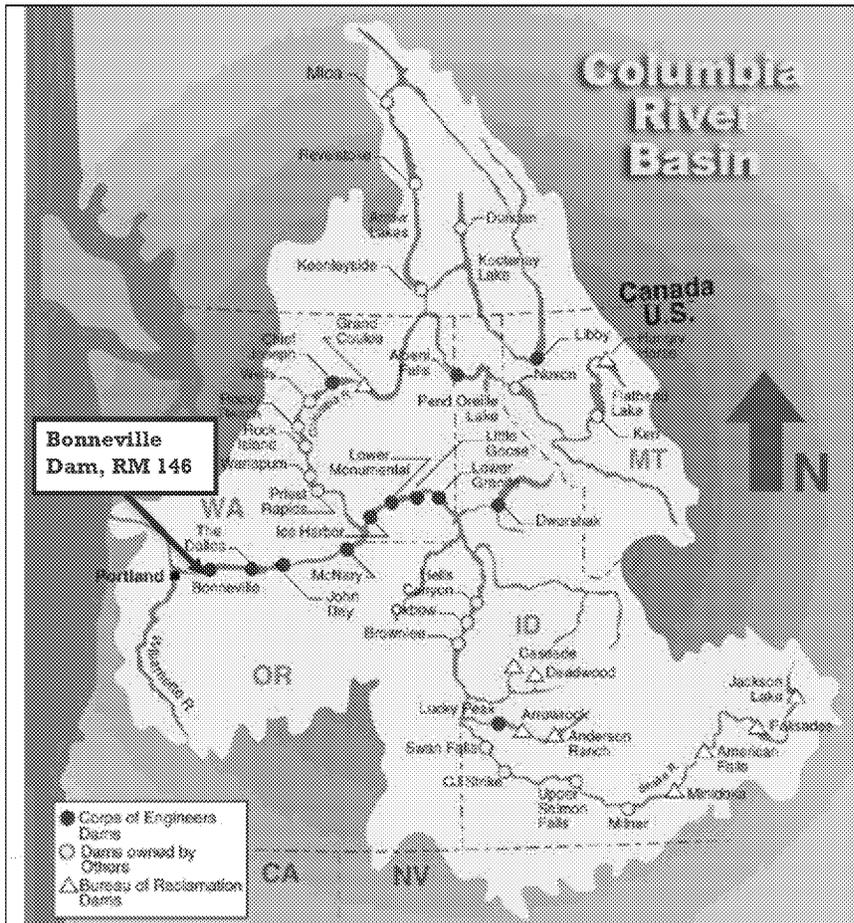


# Yakama Nation Concerns

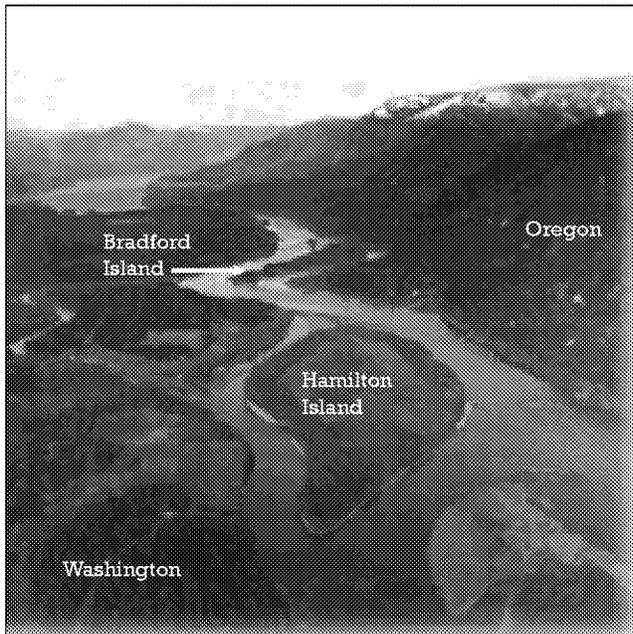
- Lack of Budget
- Lack of Protectiveness
  - Contaminants of concern, data, science & methods - disagreements
  - Legal interpretations
    - OR cleanup regs – not recognized
    - WA sediment regs – not recognized
    - CERCLA - alternative interpretations
  - Failure to use YN tribal exposure scenario in risk assessments
- Upland OU
  - Lack of certainty on authority for addressing ongoing pathways to river
- In-River OU
  - Severity of fish contamination & ongoing exposure to tribal members
  - Data gaps – full nature & extent of contamination not defined



# Site Location

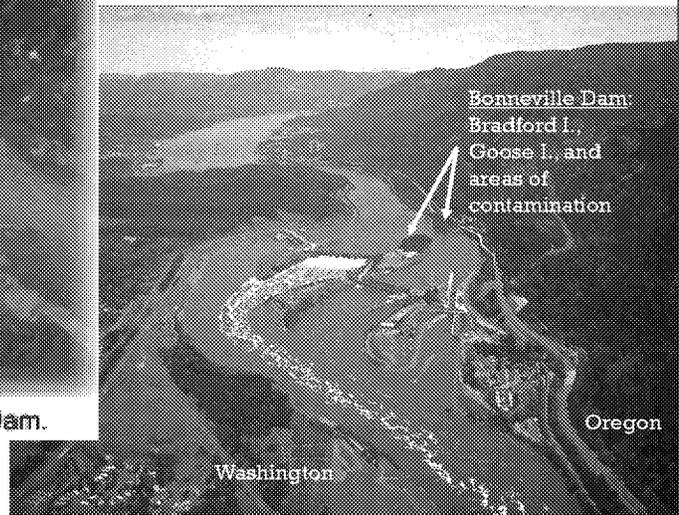


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Columbia River, prior to construction of the Dam.

<http://www.u-s-history.com/pages/h1792.html>



Post-dam construction



## NEXT STEPS:

- 2020 – minimal, continue contract work
  - stormwater sampling
  - cultural survey
  - near-bottom surface water passive sampling
  
- Unknown - Timeline for cleanup of upland and river
  - Upland - Final Proposed Plan
    - Active Cleanup – Landfill & Pistol Range AOPCs
    - No Further Action Determination – Sandblast & Bulb Slope AOPCs
  - Upland - Source Control Actions/O&M - Sandblast & Bulb Slope AOPCs
  - In-River – Feasibility Study